I. PURPOSE STATEMENT

A. Project Summary

ECA will create, maintain and implement educational resources for residents throughout Philadelphia about the relationship between environmental and human health, relating to the Clean Air Act, Section 103(b)(3), the Clean Water Act, Section 104(b) (3), the Toxic Substances Control Act, Section 10(a), and the Solid Waste Disposal Act, Section 8001(a). These resources will empower residents to improve their health, their environment, and resilience in the face of climate change impacts.

ECA will create an accessible *Community Sustainability Handbook* for public distribution, crafted to help residents improve home environmental quality and raise health outcomes while reducing their carbon footprint and saving money. ECA will also publish the Handbook on its website, www.ecasavesenergy.org, and link to in-depth resources that will be accessible via cell phones and other mobile devices and regularly updated with recent data. This form of access is notably a primary form of internet access for many Philadelphians who do not own computers but use their smartphones. The Handbook will include a significant focus on climate change preparedness that addresses how climate change will impact Philadelphians, and how preparedness at home and in local communities can reduce risks. Finally, ECA will train community members throughout low and low moderate income communities in the curriculum from the Handbook through workshops, reaching thousands of Philadelphia residents per year through the broad-reaching and deeply-rooted network of our Neighborhood Energy Centers and other community partners.

ECA's proposed program, "Community Education for a Healthy and Sustainable Philadelphia," will increase all residents' awareness of environmental health hazards in their own homes and communities, and provide education around the actions they can take to address such issues personally and contact the appropriate organizations. These solutions will improve community mitigation of and adaptation to climate change, and drive reduced health risks in the most affected communities.

II. Environmental, Public Health and Community Climate Resiliency Education for Affected Communities

A. Overall Characteristics of the Community

Philadelphia's poverty rate of 27% is close to double the national average. A recent study by The Pew Charitable Trusts states that among the nation's 25 largest cities, only Detroit has a higher poverty rate than Philadelphia. This study also places Philadelphia's rates are at roughly 20% for whites, 34% for African Americans, and 42% for Hispanics.[1] The Philadelphia Inquirer has reported that Philadelphia has the highest poverty rate of America's biggest cities and the highest rate of deep poverty – people with incomes below half of the poverty line – of any of the nation's 10 most populous cities. Philadelphia's deep-poverty rate is 12.9 %, and the annual salary for a single person at half the poverty line is around $5,700.[2] Philadelphia's unemployment rate, poverty rate, and percentage of minority population are all higher than national averages.

[1] The Pew Charitable Trusts, "Philadelphia 2013: The State of the City," page 54.
[2] The Philadelphia Inquirer, "Of Big Cities, Philadelphia Worst for People in Deep Poverty," March 19, 2013.

B. Environmental Hazard Information

Parallel to Philadelphia's economic issues, the city also has a combined 278 cleanup sites[3] including Superfund National Priority List (NPL) sites, RCRA Corrective Actions (CA) and Brownfields properties, federal facilities under EPA's cleanup programs, and removals from EPA's epaosc.net site. A large number of people falling below the poverty line live near the 278 known cleanup sites. These sites account only for those that have been identified and recorded. Low income neighborhoods in Philadelphia are often in areas that were previously heavily industrial and may have many unidentified environmental hazards. This presents a severe environmental justice challenge to the targeted neighborhoods.

Living close to cleanup sites such as Brownfields and Superfund sites poses health problems due to contamination exposure. According to www.airnow.gov, Philadelphia experiences at least 1 Code Orange Alert per month, where air pollution levels lie between 101 and 150 on the air quality index. In 2014, Philadelphia's fine particle pollution measured 13.4 $\mu g/m^3$, failing the National Ambient Air Quality Standard of 12 $\mu g/m^3$.[4] The public health costs of these pollutants are very high, and disproportionately affect low income people. The "2012 Pennsylvania Asthma Report" states that the current asthma prevalence among adults was significantly higher (15% in 2010) among people with an income level of less than $15,000, compared to an income level of $50,000 and higher. The percentage of adults with asthma with an income below $15,000 is 15% whereas the rate for adults in all incomes above $15,000 is below 10% (8% in 2010). Children are even more vulnerable to this disease. [5] The rate of asthma in Philadelphia children was 22.8% in 2009. Children who live in inner city environments are exposed to both outdoor and indoor asthma triggers, such as smog, pollen, tobacco smoke, pet allergens, cockroaches and dust.

Community Climate Resiliency

Those most vulnerable to climate change are low-income populations, elderly, non-English speaking groups, those with chronic illness or disabilities, and those without insurance. These groups are all present in Philadelphia in high proportions relative to other US cities. The ways climate change will impact Philadelphia will directly and severely affect these groups.

The Union of Concerned Scientists (UCS) has examined the effects of emissions and climate change on ozone concentrations, and predicts increases of 15 to 25 percent under their higher-emissions scenario and 5 to 10 percent under their lower-emissions scenario.[6] This would cause a quadrupling of the number of days in Philadelphia when ozone concentrations exceed federal

[3] EPA Cleanups in My Community: http://iaspub.epa.gov/apex/cimc/f?p=255:63
[4] State of the Air 2014, American Lung Association: http://www.stateoftheair.org/2014/states/pennsylvania/philadelphia-42101.html
[5] 2012 Pennsylvania Asthma Burden Report, Pennsylvania Department of Health, page 27.
[6] Union of Concerned Scientists, Climate Change in Pennsylvania: Impacts and Solutions for the Keystone State. October 2008. Available at: http://pbadupws.nrc.gov/docs/ML0913/ML091390883.pdf

standards.[7] This will seriously threaten respiratory health, especially for the young and old, the chronically ill, and populations living in neighborhoods with poor tree cover.

According to a recent study from the Environment America Research & Policy Center, extreme precipitation – rainstorms and snowfalls that are among the largest experienced at a particular location – are now happening 30% more often in the US than in 1948. The largest annual storms nationwide are now producing 10% more precipitation than they did 65 years ago.[8] Precipitation forecasting by UCS expects short-term increases of 5% and late century increases over 12%. It should be noted, however, that these increases do not necessarily fall during the summer, and the lack of additional summer rainfall combined with rising temperatures will lead to increased frequency and severity of summer droughts.[9]

C. Current Efforts and Achievements

ECA contracts with PWD to deliver the citywide Low Income Water Conservation Program. ECA administers the PA Weatherization Assistance Program, the LIHEAP Crisis Interface Program, the City's Heater Hotline Program and other utility conservation programs. ECA has also performed Energy STAR and LEED for Homes certifications, and administered the residential EnergyWorks program, a DOE Better Buildings Program which retrofitted 2,000 homes in the 5-county Philadelphia region from 2010 to 2013. ECA trains energy auditors, technicians, quality control inspectors, and others to national standards and certifications. ECA's were the first Energy Auditor and Installer Appenticeships approved by both the U.S. DOL and the Commonwealth of Pennsylvania, and we remain the only IREC accredited training center in the Mid-Atlantic region authorized by the U.S. Department of Energy to deliver the Home Energy Professional training. ECA's graduates and former interns have had tremendous impact in the Philadelphia region.

ECA's energy conservation efforts have reduced carbon emissions by more than 75,000 tons. We have reduced water consumption in treated low income homes by more than 28% and increased stormwater capture in Philadelphia. Our white roof coatings on more than 700 homes cool indoor temperatures in summer, and lower the city's urban heat island impact. ECA and the NECs have saved low income communities more than $250 million dollars- a very significant positive financial impact for these struggling communities and the city as a whole. We are mitigating Philadelphia's contribution to climate change, blunting the effects of poverty which lower community resilience to climate change, and helping residents eliminate health and safety problems in their homes.

III. ECA's ties to Philadelphia's Communities

A. Historical Involvement and Beginnings

[7] Union of Concerned Scientists, Confronting Climate Change in the US Northeast, July 2007. Available at: http://www.ucsusa.org/sites/default/files/legacy/assets/documents/global_warming/confronting-climate-change-in-the-u-s-northeast.pdf

[8] Madsen, T; Wilcox, N. (2012). When It Rains, It Pours: Global Warming and the Increase in Extreme Precipitation from 148 to 2011. Retrieved from http://environmentamerica.org/sites/environment/files/reports/When%20It%20Rains%2C%20It%20Pours%20vUS.pdf

[9] Union of Concerned Scientists, Climate Change in Pennsylvania

ECA was founded in 1984 by a group of religious, government and civic leaders to help solve Philadelphia's energy/poverty crisis in the early 1980's. While providing essential public services, ECA was intentionally created as a nonprofit organization to have the independence and flexibility it would need to respond effectively to a broad range of challenges. In the year before ECA's founding, 1983, residential gas terminations in the city increased from 3,000 to 30,000. The only bill payment assistance program available, the Low Income Home Energy Assistance Program, was so poorly administered the state was failing to spend its federal allocation and returned more than $20 million to the federal government! ECA started in November of 1984 with 4 staff and a grant from the City of Philadelphia of $80,000.To build capacity at the grassroots level, ECA established a resilient, citywide network of Neighborhood Energy Centers, each of which serves as a one-stop shop for low income energy services, including weatherization, heating system repair and replacement, bill payment assistance, budget counseling, and energy education.

B. Work Addressing Local Environmental, Health, and Climate Resiliency Issues

ECA administers almost all the low income energy services in Philadelphia, including hands on energy conservation workshops. Workshop participants learn how to install self-help weatherization materials and adopt energy saving behaviors to cut energy use. ECA empowers individuals with the knowledge of how to save energy in their own homes.

C. How Residents are part of the decision-making process

Each NEC has a Board of Directors on which a number of neighborhood residents always serve. ECA's own Board is likewise comprised of a very diverse and local group, including at least two representatives from the Neighborhood Energy Centers (NECs). ECA holds monthly meetings with all the NECs, and requests input into program design and other decisions at each of these meetings. As part of the process of becoming registered to the ISO 9001 standard, ECA incorporated customer satisfaction surveys and problem resolution processes into every one of our programs. These are maintained every year on an on-going basis.

D. Community Level Capacity Building

ECA's annual training conference attracts representatives from 120 + organizations from across the region to inform them of the most recent developments in energy and broader sustainability issues in Philadelphia and the region. The conference is largely devoted to in-service training, and gives front line service workers the opportunity to dialogue with program administrators at the city, state and federal levels.

ECA has trained the trainers citywide in energy efficiency, water conservation, and electricity conservation. ECA incorporates an introduction to Climate Change and mitigation into these trainings. This network of trainers is very extensive, and can magnify the effects of any curriculum changes at ECA.

Our training and capacity building for the NECs includes: Information Technology, Program Design and Delivery, Evaluation, Customer Service, Leadership Development, Policy Development and related subjects. As a result of ECA's capacity building efforts, the NECs are one of the most important networks of community based organizations in the region.

E. How ECA maintains an ongoing relationship with the affected community's residents

ECA now has 14 NECs serving all low income communities in Philadelphia. These Centers are ECA's roots in the community. They create stability, build trust and guarantee equal access for the low income families at the heart of ECA's mission. The NECs' intake is entered into ECA's centralized database, so all staff can see in real time if the family is eligible and what services they have already received.

IV. Project Description

A. Project Goals and Links to EPA's Strategic Plan

The long-range goals of this project include continuous and steady improvement of Philadelphia's public health, resilience to the effects of climate change, mitigation of contributions to climate change, and understandings of neighborhood-specific health and adaptation needs. This project supports: EPA Goal 1, Objectives 1.1 and 1.2; EPA Goal 2, Objectives 2.1 and 2.2; EPA Goal 3, Objective 3.1; EPA Goal 4, Objective 4.2; 'Working to Make a Visible Difference in Communities;' and 'Launching a New Era of State, Tribal, Local, and International Partnerships' with a focus on local-level partnerships.

To support EPA's Strategic Measures, this project will involve ECA and our NECs integrating climate change data, models, information, and other decision support tools developed by EPA for climate change adaptation into our planning processes. Climate change adaptation will be more integrated into the implementation of our environmental programs, supported by major EPA financial mechanisms. We will raise community awareness around Philadelphia's concentrations of inhalable fine particles and enhance resident awareness of how to reduce contributions to these concentrations, along with how to protect their health from these concentrations. This project will dramatically raise and continue to raise the number of people taking all essential actions to reduce exposure to indoor environmental asthma triggers in homes, and especially reduce racial and ethnic asthma disparities. Resident-led stormwater management will reduce use of combined sewer outflows and thus improve water quality for impaired area watersheds. Community solid waste education will help increase the amount of virgin materials offset through reuse, recycling and sustainable materials management. Capture of storm-water and gray-water usage education will allow reduced water demand from individuals.

B. Project Methods

ECA will develop, publish, and disseminate a *Community Sustainability Handbook.* The Handbook will be disseminated both in print and through web-based versions, including a cell phone friendly version. ECA will integrate climate resilience into its existing energy education workshops and conduct a Train the Trainers course to increase the number of qualified community based trainers. We will establish a process to gather feedback at the neighborhood

level, and create a forum for community residents to share questions and ideas relating to intersections of environmental and human health. We will maintain and expand web resources to address community-specific health and resilience risks.

Outputs will include:

1. A *Community Sustainability Handbook* which will educate residents on methods to, improve their health, save money, and help the environment at the same time.
2. Publishing of the *Handbook* in both print and on ECA's website which, in addition to maintaining a wiki-based format for the above content, will provide space for residents to share their particular ideas and concerns.
3. Train the Trainers to increase the number of qualified trainers by at least 8 to 10,
4. Workshops for at least 2,000 residents incorporate community sustainability and environmental health content with energy conservation education.
5. Publication of articles in community newspapers featuring sustainability practices and local success stories
6. Monthly sustainability tips published on the website and texted to subscribers
7. A community survey to administer through the NECs to better understand the specific concerns and challenges of Philadelphia's neighborhoods. Based on survey results, the handbook will be modified to respond to local concerns.

Methods of measuring success for the project will be direct quantitative measures when possible, survey-based when appropriate, and qualitatively assessed when not. Website usage can be tracked, as can the number of residents who participate in updated workshops, and trainers who are trained in the expanded curriculum. Outside surveys can give us baselines for community understanding of the issues and reveal how our programs affect community understandings around environmental health matter and climate resiliency. Finally, internal review should help us understand how qualitatively helpful increased data-gathering is to our own efforts, and to our NECs.

C. Community Capacity Built

This project will build on existing capacity in low income communities across the city by pulling together the most important information into a single, easy to use format of a Handbook, training community leaders to conduct workshops, and providing a forum for residents to exchange ideas, as well as enhance the quality of information and analysis available to the NECs and other community partners. NECs should benefit from ECA synthesizing survey results from their residents with environmental data to connect climate conditions to reported issues.

D. Project Relation to Environmental Statutes

ECA's project provides community training in air quality monitoring and lung health protection related to the Clean Air Act, Section 103(b)(3). This project also provides for community education for stormwater capture and usage relating to the Clean Water Act, Section 104(b) (3). Where the project educates the public on hazards and methods relating to brownfields and Philadelphia's Superfund concentrations, it relates to the Toxic Substances Control Act, Section

10(a). Finally, community recycling and reuse education falls under the Solid Waste Disposal Act, Section 8001(a).

E. Project Partner Roles

As ECA's expertise is primarily in building science and training, partnering with the health expertise of the NNCC will allow us to offer a holistic view of home hazards and solutions, to reduce environmental footprint, improve resilience to climate change, and to integrate these with reducing exposure to health hazards. ECA will collaborate with NNCC in development of the curriculum and web materials, leveraging their health expertise.

F. Nature of Project Partners

ECA's 14 Neighborhood Energy Centers (NECs) are nonprofit community based organizations under contract to ECA to serve as one-stop-shops providing access to bill payment assistance, energy education, water conservation, energy conservation and home repair services to more than 15,000 low income households each year. Many of the NECs have Workshop Leaders on staff who are skilled in providing energy, housing, water, stormwater workshops to very diverse audiences.

The National Nursing Centers Consortium (NNCC) is a Philadelphia-headquartered organization devoted to comprehensive primary care, which is to say medical treatment that may start in clinics but also goes beyond the clinic. NNCC's programs include work toward lead safety, home environmental health assessment, asthma workshops, and more. They bring the expertise of varied nursing careers into the partnership.

G. Interest of Partners in Project

The NNCC works with vulnerable populations to improve the impact of the home environment on individual health, especially on the health of developing children. ECA and the NNCC are natural partners in such efforts, bringing complementary expertise and education to a necessarily interdisciplinary effort. The NECs contribute their community roots and relationship of trust with residents. All these organizations care about the affected communities, and need one another to properly address the issues they see threatening patient outcomes.

H. Plan for Sustained Relationship with Partners

ECA and NNCC are very complementary: ECA has extensive subject matter expertise and is the largest provider in the region of energy efficiency and water conservation services, as well as training. NNCC has relationships with public health professionals. We plan to work together to develop a stronger capacity in the region to address environmental impacts on human health, both in local pollution and toxics, and in climate change resilience. ECA has a very extensive track record in coordination of services and collaboration and is confident that this collaboration with NNCC will be mutually beneficial. ECA and the NECs have had a very strong and vibrant relationship for almost 30 years.

V. Organizational Capacity and Programmatic Capability

A. Grant Management System

ECA administers a broad range of energy programs in Philadelphia and the surrounding counties, and works closely with government, utilities and industry to meet their goals. ECA has consistently worked toward the provision of excellent energy conservation services, which are capable of producing high levels of energy savings cost effectively. ECA receives approximately 68% of its funding from utilities and various federal, state and city governmental agencies, 30% from private sources. The remaining 9% is from fee-for-service clients from which any profit is utilized to support ECA's services to low-income residents.

ECA's cost centers include the following divisions: Heating, Conservation, Training, Intake and Community Programs. Identifiable direct costs are charged to the appropriate department & contract. Common costs are allocated based upon an appropriate methodology.

B. Previous Successful Project Management Methods

ECA has an impeccable reputation for responsible financial stewardship, and has enjoyed longstanding relationships with major funding and contract sources. ECA's financial management staff includes an inactive CPA with 20 years of nonprofit, cost center driven accounting experience. In an effort to improve the timeliness and breadth of financial reports which support the management team's decision-making capabilities and accountability. We have implemented a versatile financial software package, re-designed our divisions and allocation methodology to enhance reporting, and developed a cash flow model to monitor activity based upon individual contract terms. Our current budget process has been expanded to both program and departmental levels. The Board of Directors of ECA understands and participates in financial decision-making. The Audit and Finance Committee of the Board of Directors of ECA meets monthly. Monthly financial statements are reviewed with both the Finance Committee and the Board.

C. Planned Project Management Methods

The Director of Community Programs will oversee this project, establishing a timeline with very specific deliverables. He and the Project Manager will meet monthly with ECA's Executive Director to insure the project remains on schedule and can meet all its deliverables.

D. Organizational Experience

The Energy Coordinating Agency has been delivering energy conservation education for almost 30 years, both in-home and through workshops. Reaching thousands of households every year, ECA has trained more than 40 community leaders to deliver our curriculum. See our website for a more detailed description of our experience: www.ecasavesenergy.org.

E. Past Federal Grant Performance

ECA has extensive experience administering federal grants and programs, including the Weatherization Assistance Program, Community Development Block Grant programs, DOE's Better Buildings Program (EnergyWorks), EPA grants, and a DOE energy education grant. All have been completed successfully, on time and on budget.

VI. Project Manager Qualifications

A. Qualifications of the Project Manager Relevant to the Project

Thomas Flaherty holds a Bachelors of Public Policy from the College of William and Mary. He comes to ECA with experience in the sustainability and environmental justice movements since 2008. He has specific training and project experience in various forms of data collection including survey design, programmed statistical analysis, qualitative methods, and multiple source integration. He began his involvement in targeted political advocacy in 2006, and has maintained his interest in data-driven communications ever since. This project will integrate his areas of interest and expertise, such that community level data gathering drives efficiently targeted messaging to impact public behaviors in ways which enhance policy outcomes in areas of sustainability, impact mitigation, community resilience, and public health.

B. Project Manager ties to ECA

Mr. Flaherty currently acts as Development and Workshop Coordinator for the ECA, primarily performing research relevant to both ongoing work and proposed projects. He also has been updating, revising, and expanding ECA's workshop curriculum, and delivering the presentation to various community groups throughout Philadelphia.

C. Past Project Manager activities within community

Mr. Flaherty, a relative newcomer to Philadelphia, will be working closely with veterans of ECA's Community Programs department and the NECs who have deep community roots. He will have a full year of experience in community education, traveling around Philadelphia delivering self-help weatherization and water conservation workshops to diverse audiences.

VII. Past Reporting Performance on Outputs and Outcomes

A. Relevant Grants & Cooperative Agreements

2013 EPA Workforce Grant to train very low income youth for jobs in environmental remediation got underway in October of 2014. The opportunity number was EPA-OSWER-OBLR-13-03, CDFA 66.815. That project was entitled the "Community Environmental Workforce Development Project," and the agency contact was Joe Bruss. ECA was funded for roughly $100,000.

ECA administered the DOE's Better Buildings program, EnergyWorks, retrofitting more than 2,000 homes in the Philadelphia region over 3 years, and being acknowledged by DOE as among the top 5 programs nationally. This was the Department of Energy's Energy Efficiency and Conservation Block Grants: Competitive Solicitation: Retrofit Ramp-up Program, Funding Opportunity Announcement Number: DE-FOA-0000148, CFDA Number: 81.128. The city's

submission was Energy Efficiency and Conservation Block Grants: Competitive Solicitation: Retrofit Ramp-up Program, and ECA received over $4 million dollars across the three years of that program.

ECA maintains a Neighborhood Energy Center contract with the City of Philadelphia's Office of Housing and Community Development using CDBG funding. ECA and the NECs provide more than 50,000 energy services to approximately 20,000 low income households every year.
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B. Methods of Documenting/Reporting Progress

ECA built and maintains a powerful relational database which records and tracks all services provided by ECA and the NECs. This database enables ECA to provide accurate and time reports to our funders, ensuring a high level of accountability and enabling evaluation of programs. For evaluations of ECA programs, please see our website. In 2009 ECA became registered to the ISO 9001 standard, and is in fact dedicated to continuous quality improvement. Through the ISO process we strengthened our self-evaluation and customer service processes, implementing a customer satisfaction survey for every program. This feedback as well as our formal evaluations enables ECA to continually refine our program design and execution.

C. Documentation and Reports in Situations Where We Failed to Make Progress

Not applicable- ECA has never failed to make progress when funded.

VIII. Quality Assurance Project Plan Information

A. Use of existing environmental data or the collection of new data

Yes, ECA will be using environmental data to better target programming toward specific neighborhood challenges.